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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/730,238	12/05/2000	Brian A. Leete	884.335US1	7903
21186	7590	12/24/2003	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			LEE, CHRISTOPHER E	
			ART UNIT	PAPER NUMBER
			2112	8

DATE MAILED: 12/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/730,238	LEETE, BRIAN A.
	<b>Examiner</b>	<b>Art Unit</b>
	Christopher E. Lee	2112

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
 THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 24 November 2003.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-23 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
 a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
- 4) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

## DETAILED ACTION

### *Receipt Acknowledgement*

1. Receipt is acknowledged of the Amendment filed on 24<sup>th</sup> of November 2003. Claims 1, 3, 7, 8, 12, 13, 17, 21 and 23 have been amended; claims 24 and 25 have been canceled; and no claim has been newly added since the last Office Action was mailed on 20<sup>th</sup> of June 2003. Currently, claims 1-23 are pending in this application.

### *Claim Rejections - 35 USC § 103*

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-4, 7, 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaguchi et al. [JP 2000-232969 A; hereinafter Yaguchi] in view of Tsai [US 6,283,789 B1].

*Referring to claim 1*, Yaguchi discloses an apparatus (i.e., USB hub 10 of Fig. 2), comprising: a housing (i.e., main part 11 of Fig. 1 and Fig. 2); a power supply (i.e., switching power supply 15 of Fig. 2) enclosed in said housing (See Fig. 2); and a bus hub (i.e., USB hub circuit 13 of Fig. 2) enclosed in said housing (See Fig. 2).

Yaguchi does not expressly teach a downstream receptacle connected to both said power supply and said bus hub.

Tsai discloses a data and power transmitting cable system (See Abstract), wherein a downstream receptacle (i.e., peripheral device port system 100 of Fig. 18) connected to both a power supply and a bus hub (See col.3, lines 51-56; i.e., wherein in fact that the peripheral device port has a first port and a second port, and the cable system connects the first port of the peripheral device with the two ports of the main device for transmission of power and data implies that said downstream receptacle connected to both a power supply and a bus hub).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said cable system, as disclosed by Tsai, in said apparatus, as disclosed by Yaguchi, for the advantage of providing power for a device connected via a USB or IEEE 1394 cable that consumes a little more power than is admitted through said USB or IEEE 1394 cable (See Tsai, col. 1, lines 64-67).

*Referring to claim 2*, Yaguchi teaches said bus hub further comprises an upstream port (i.e., port from USB hub circuit 13 for USB cable 14 in Fig. 2).

*Referring to claim 3*, Yaguchi teaches said bus hub comprises: at least one downstream port (i.e., USB ports 12 in Fig. 2) to connect to at least one downstream device (i.e., Keyboard, Mouse, Printer, etc. in Fig. 2).

*Referring to claim 4*, Yaguchi teaches said bus hub is self powered (See col. 2-3, paragraph 11; i.e., the DC voltage (5V) from switching power supply 15 may be supplied to each USB port 12 and USB cable 14 through USB hub circuit 13 in Fig. 2).

*Referring to claim 7*, Yaguchi teaches said power supply (i.e., switching power supply 15 of Fig. 2) is coupled to supply to said bus hub (i.e., USB hub circuit 13 of Fig. 2; See col. 2, paragraph [0011]).

*Referring to claim 8*, Tsai teaches a cable (i.e., cable system 300 of Fig. 1) connected to said downstream receptacle (i.e., peripheral device port system 100 of Fig. 6), wherein said cable further comprises: a device power wire (i.e., wire of cable 15, which is connected to  $V_{bus}$  1a of Fig. 4); a device ground wire (i.e., wire of cable 15, which is connected to GND 4a of Fig. 4); a computer power wire (i.e., wire of cable 16, which is connected to  $V_{bus}$  1a of Fig. 5); a computer ground wire (i.e., wire of cable 16, which is connected to GND 4a of Fig. 5); and a plurality of signal wires (i.e., wires of cable 15, which are connected to D. 2a and D<sub>+</sub> 3a in Fig. 4).

*Referring to claim 11*, Yaguchi teaches that said power supply (i.e., switching power supply 15 of Fig. 2) further comprises an alternating current (i.e., AC 100V) to direct current (i.e., DC 5V) converter (See col. 3, paragraph 13).

4. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaguchi [JP 2000-232969 A] in view of Tsai [US 6,283,789 B1] as applied to claims 1-4, 7, 8 and 11 above, and further in view of Urade et al. [US 6,272,644 B1; hereinafter Urade].

*Referring to claim 5*, Yaguchi, as modified by Tsai, discloses all the limitations of the claim 5 except that does not teach said bus hub is bus powered.

Urade discloses a bus hub (i.e., USB hub 11 of Fig. 4) is bus powered by a power controller 21 (Fig. 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said power controller, as disclosed by Urade, in said bus hub, as disclosed by Yaguchi, as modified by Tsai, for the advantage of allowing a bus hub controller (i.e., USB hub controller) to support power mode setting as applied by an external device, either bus powered or self powered (See Urade, col. 4, lines 36-38).

*Referring to claim 6*, Yaguchi, as modified by Tsai, discloses all the limitations of the claim 6 except that does not teach a hub repeater connected to said upstream port.

Urade discloses a USB hub 11 (Fig. 4), wherein a hub repeater (i.e., Hub Repeater 12 of Fig. 4) connected to an upstream port (i.e., Root Port 13 of Fig. 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said hub repeater, as disclosed by Urade, in said bus hub, as disclosed by Yaguchi, as modified by Tsai, so as to manage port connectivity between a selected downstream functional device and a host computer connected to said upstream port (i.e., root port; See Urade, col. 3, lines 60-62).

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yaguchi [JP 2000-232969 A] in view of Tsai [US 6,283,789 B1] as applied to claims 1-4, 7, 8 and 11 above, and further in view of Decuir [US 5,781,028 A].

*Referring to claim 9,* Yaguchi, as modified by Tsai, discloses all the limitations of the claim 9 except that does not teach said plurality of signal wires further comprises a signal twisted pair. Decuir discloses a system for a switched data bus termination (Fig. 6), wherein a plurality of signal wires (i.e., USB data signal wires in Fig. 6) comprises a signal twisted pair (i.e., twisted pair data cable 72 of Fig. 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said twisted pair cable, as disclosed by Decuir, for said signal wires, as disclosed by Yaguchi, as modified by Tsai, for the advantage of supporting high speed version of USB (See Decuir, col. 5, lines 5-7).

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yaguchi [JP 2000-232969 A] in view of Tsai [US 6,283,789 B1] as applied to claims 1-4, 7, 8 and 11 above, and further in view of Sanchez [US 6,446,867 B1].

*Referring to claim 10,* Yaguchi, as modified by Tsai, discloses all the limitations of the claim 10 except that does not teach said plurality of signal wires further comprises a fiber optic channel. Sanchez discloses a electro-optic interface system (Fig. 2A), wherein a plurality of signal wires (i.e., a plurality of optical links in Fig. 2A), which are driven by a laser module 250 (Fig. 2A) and a photo detector 260 (Fig. 2A), comprises a fiber optic channel (i.e., optical channel of Fiber Optic Cable 135 in Fig. 2A).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said fiber optic channel with its driver, as disclosed by Sanchez, for signal wires, as disclosed by Yaguchi, as modified by Tsai, for the advantage of providing an electro-optic system of

operation for communicating high speed digital signals between two or more electronic systems (See Sanchez, col. 1, lines 57-60) without spreading electromagnetic noise, which is well known to one of ordinary skill in the art of fiber optical communication.

7. Claims 12, 13, 16, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimazaki [US 6,338,143 B1] in view of Yaguchi [JP 2000-232969 A] and Tsai [US 6,283,789 B1].

*Referring to claim 12,* Shimazaki discloses a computing unit (i.e., electronic device 100 of Fig. 1), comprising: a computer (i.e., pen-input type personal computer; See col. 2, lines 65-66) comprising: an upstream receptacle (i.e., USB port 112 of Fig. 1) to deliver data signals to said computer (See col. 3, lines 19-22); and a power receptacle (i.e., AC-DC adapter connection port 111 of Fig. 1) to deliver electrical power to said computer (See col. 3, lines 16-18).

Shimazaki does not disclose a power hub comprises: a housing; a power supply enclosed in said housing; and a bus hub enclosed in said housing.

Yaguchi discloses a power hub (i.e., USB hub 10 of Fig. 2), wherein said power hub comprising: a housing (i.e., main part 11 of Fig. 1 and Fig. 2); a power supply (i.e., switching power supply 15 of Fig. 2) enclosed in said housing (See Fig. 2); and a bus hub (i.e., USB hub circuit 13 of Fig. 2) enclosed in said housing (See Fig. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said power hub, as disclosed by Yaguchi, in said computing unit, as disclosed by Shimazaki, for the advantage of providing a convenient current supply to the various peripheral devices connected to a port (i.e., USB port) offering said power hub (i.e., USB hub) without any device power wiring complication (See Yaguchi, col. 1, paragraph 6).

Shimazaki, as modified by Yaguchi, does not expressly teach said power hub is coupled to said upstream receptacle and said power receptacle via a cable.

Tsai discloses a data and power transmitting cable system (See Abstract), wherein

a power hub is coupled to a upstream receptacle (i.e., A connector 10 of Fig. 2) and a power receptacle (i.e., A connector 11 of Fig. 3; See col.3, lines 51-56; i.e., wherein in fact that the peripheral device port has a first port and a second port, and the cable system connects the first port of the peripheral device with the two ports of the main device for transmission of power and data implies that a power hub is coupled to a upstream receptacle and a power receptacle) via a cable (i.e., cable system 300 of Fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said cable system, as disclosed by Tsai, in said computing unit, as disclosed by Shimazaki, as modified by Yaguchi, so as to couple said power hub to said upstream receptacle and said power receptacle via said cable with the advantage of providing power for a device connected via a USB or IEEE 1394 cable that consumes a little more power than is admitted through said USB or IEEE 1394 cable (See Tsai, col. 1, lines 64-67).

*Referring to claim 13,* Tsai teaches said cable (i.e., cable system 300 of Fig. 1) further comprises: a device power wire (i.e., wire of cable 15, which is connected to V<sub>bus</sub> 1a of Fig. 4); a device ground wire (i.e., wire of cable 15, which is connected to GND 4a of Fig. 4); a computer power wire (i.e., wire of cable 16, which is connected to V<sub>bus</sub> 1a of Fig. 5); a computer ground wire (i.e., wire of cable 16, which is connected to GND 4a of Fig. 5); and a plurality of signal wires (i.e., wires of cable 15, which are connected to D<sub>-</sub> 2a and D<sub>+</sub> 3a in Fig. 4).

*Referring to claim 16,* Yaguchi teaches said bus hub further comprises an upstream port (i.e., port from USB hub circuit 13 for USB cable 14 in Fig. 2).

*Referring to claim 17,* Yaguchi teaches said bus hub comprises: at least one downstream port (i.e., USB ports 12 in Fig. 2) to connect to at least one downstream device (i.e., Keyboard, Mouse, Printer, etc. in Fig. 2).

*Referring to claim 19,* Yaguchi teaches said bus hub is self powered (See col. 2-3, paragraph 11; i.e., the DC voltage (5V) from switching power supply 15 may be supplied to each USB port 12 and USB cable 14 through USB hub circuit 13 in Fig. 2).

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimazaki [US 6,338,143 B1] in view of Yaguchi [JP 2000-232969 A] and Tsai [US 6,283,789 B1] as applied to claims 12, 13, 16, 17 and 19 above, and further in view of Decuir [US 5,781,028 A].

*Referring to claim 14,* Shimazaki, as modified by Yaguchi and Tsai, discloses all the limitations of the claim 14 except that does not teach said plurality of signal wires further comprises a signal twisted pair.

Decuir discloses a system for a switched data bus termination (Fig. 6), wherein a plurality of signal wires (i.e., USB data signal wires in Fig. 6) comprises a signal twisted pair (i.e., twisted pair data cable 72 of Fig. 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said twisted pair cable, as disclosed by Decuir, for said signal wires, as disclosed by Shimazaki, as modified by Yaguchi and Tsai, for the advantage of supporting high speed version of USB (See Decuir, col. 5, lines 5-7).

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimazaki [US 6,338,143 B1] in view of Yaguchi [JP 2000-232969 A] and Tsai [US 6,283,789 B1] as applied to claims 12, 13, 16, 17 and 19 above, and further in view of Sanchez [US 6,446,867 B1].

*Referring to claim 15,* Shimazaki, as modified by Yaguchi and Tsai, discloses all the limitations of the claim 15 except that does not teach said plurality of signal wires further comprises a fiber optic channel.

Sanchez discloses a electro-optic interface system (Fig. 2A), wherein a plurality of signal wires (i.e., a plurality of optical links in Fig. 2A), which are driven by a laser module 250 (Fig. 2A) and a photo

detector 260 (Fig. 2A), comprises a fiber optic channel (i.e., optical channel of Fiber Optic Cable 135 in Fig. 2A).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said fiber optic channel with its driver, as disclosed by Sanchez, for signal wires, as disclosed by Shimazaki, as modified by Yaguchi and Tsai, for the advantage of providing an electro-optic system of operation for communicating high speed digital signals between two or more electronic systems (See Sanchez, col. 1, lines 57-60) without spreading electromagnetic noise, which is well known to one of ordinary skill in the art of fiber optical communication.

10. Claims 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimazaki [US 6,338,143 B1] in view of Yaguchi [JP 2000-232969 A] and Tsai [US 6,283,789 B1] as applied to claims 12, 13, 16, 17 and 19 above, and further in view of Urade [US 6,272,644 B1].

*Referring to claim 18*, Shimazaki, as modified by Yaguchi and Tsai, discloses all the limitations of the claim 18 except that does not teach a hub repeater connected to said upstream port.

Urade discloses a USB hub 11 (Fig. 4), wherein a hub repeater (i.e., Hub Repeater 12 of Fig. 4) connected to an upstream port (i.e., Root Port 13 of Fig. 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said hub repeater, as disclosed by Urade, in said bus hub, as disclosed by Shimazaki, as modified by Yaguchi and Tsai, so as to manage port connectivity between a selected downstream functional device and a host computer connected to said upstream port (i.e., root port; See Urade, col. 3, lines 60-62).

*Referring to claim 20*, Shimazaki, as modified by Yaguchi and Tsai, discloses all the limitations of the claim 20 except that does not teach said bus hub is bus powered.

Urade discloses a bus hub (i.e., USB hub 11 of Fig. 4) is bus powered by a power controller 21 (Fig. 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said power controller, as disclosed by Urade, in said bus hub, as disclosed by Shimazaki, as modified by Yaguchi and Tsai, for the advantage of allowing a bus hub controller (i.e., USB hub controller) to support power mode setting as applied by an external device, either bus powered or self powered (See Urade, col. 4, lines 36-38).

11. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai [US 6,283,789 B1] in view of Linnell [US 6,466,718 B1].

*Referring to claim 21,* Tsai discloses a cable (i.e., cable system 300 of Fig. 1) comprising: a device power wire (i.e., wire of cable 15, which is connected to V<sub>bus</sub> 1a of Fig. 4); a device ground wire (i.e., wire of cable 15, which is connected to GND 4a of Fig. 4); a computer power wire (i.e., wire of cable 16, which is connected to V<sub>bus</sub> 1a of Fig. 5); a computer ground wire (i.e., wire of cable 16, which is connected to GND 4a of Fig. 5); and a plurality of signal wires (i.e., wires of cable 15, which are connected to D<sub>-</sub> 2a and D<sub>+</sub> 3a in Fig. 4).

Tsai does not teach said plurality of signal wires are fiber optic channel.

Linnell discloses an apparatus for transmitting fiber-channel and non-fiber channel signals through a common cable (i.e., cable 52<sub>0</sub> of Fig. 5), wherein said common cable comprising a plurality of wires (i.e., electrical conductors 88 in Fig. 5A) and a fiber optic channel (i.e., fiber-channel 82a-82d in Fig. 5A). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted said plurality of signal wires, as disclosed by Tsai, by said fiber optic channel of said apparatus, as disclosed by Linnell, for the advantage of providing for transmitting said fiber optic channel (i.e., fiber channel) signals and the other plural wires (i.e., non-fiber channel) signals through said cable (See Linnell, col. 2, lines 25-30).

*Referring to claim 22,* Tsai teaches an upstream plug (i.e., B connector 20 and 21 in Fig. 1, as combined) to connect to both an upstream bus receptacle and a power receptacle (i.e., peripheral device

port system 100 of Fig. 6), wherein said power receptacle draws electric power from said computer power wire (See col. 3, lines 59-63; i.e., wherein in fact that delivering extra power to the peripheral device port system clearly anticipates said power receptacle draws electric power from said computer power wire).

*Referring to claim 23*, Tsai teaches a downstream plug (i.e., A connector 10 and 11 in Fig. 1, as combined) to electrically connect to both a downstream bus receptacle and a power receptacle (i.e., main device port system 200 of Fig. 7), wherein said power receptacle is to supply electric power to said computer power wire (See col. 3, lines 59-63; i.e., wherein in fact that delivering extra power to the peripheral device port system clearly anticipates said power receptacle is to supply electric power to said computer power wire), and wherein said downstream bus receptacle is connected to said device power wire, said device ground wire, and said plurality of signal wires (See col. 4, lines 1-11; i.e., wherein in fact that power and data are transmitted by the first cable (e.g., USB cable) between the first port and one of the two ports on peripheral device port system clearly anticipates said downstream bus receptacle is connected to said device power wire, said device ground wire, and said plurality of signal wires).

#### *Response to Arguments*

12. Applicant's arguments filed on 24<sup>th</sup> of November 2003 (hereinafter the Response) have been fully considered but they are not persuasive.

13. Applicant's arguments with respect to claims 7, 21 and 25 have been considered but are moot in view of the new ground(s) of rejection. The claims 7 and 21 have been amended, and the claim 25 has been canceled.

14. *In response to Applicant's argument with respect to "Yaguchi was published on 22 August 2000, which less than one year before the 5 December 2000 filing date of the present application. The applicant does not admit that Yaguchi is prior art, ... Tsai issued on 4 September 2001, which is after the 5 December 2000 filing date of the present application. The applicant does not admit that Tsai is prior art, ..." on the Response page 7, the Examiner believes that the Applicant misunderstands the 35 U.S.C. 103*

(a) claim rejection for the claims 7 and 8. The Applicant essentially argues that the references' dates of Yaguchi and Tsai are not effective, respectively, for the claims rejection based on the 35 U.S.C. 103 conditions for patentability (non-obviousness). However, the 35 U.S.C. 103 conditions for patentability (non-obviousness subject matter) recites "a patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, ...". Therefore, Yaguchi is a prior art based on the 35 U.S.C. 102 (a) because the printed publication date of Yaguchi is 22 August 2000 in foreign country, and Tsai is also a prior art based on the 35 U.S.C. 102 (e) because the filing date of Tsai is 16 March 2000 in the United States. Thus, the Applicant's argument on this point is not persuasive.

15. *In response to Applicant's argument* that the Examiner's conclusion of obviousness for the 35 USC §103(a) rejection fails to establish a *prima facie* case of obviousness, the Examiner respectfully disagrees. In contrary to the Applicant's statement, all the rejections under 35 USC §103(a) in the prior and the instant Office Action established a *prima facie* case of obviousness meeting the three basic criteria of the M.P.E.P. 2143.03 (8<sup>th</sup> ed. 2001). Furthermore, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Examiner has clearly pointed out rationale for appropriate combination of the references. Thus, the Applicant's argument on this point is not persuasive.

16. *In response to Applicant's argument with respect to* "The applicant respectfully concludes from the foregoing that the PTO is obliged to provide to applicant a translation of the whole of Yaguchi into the English language with a statement that the translation is accurate. ..." on the Response page 10, the Examiner believes that the Applicant misunderstands the 37 CFR § 1.52 (b)(1)(ii). In contrary to the Applicant's assumption, such that the PTO is under a corresponding duty to conduct business in the

English language with applicants, the 37 CFR § 1.52 (b)(1)(ii) is a rule for the US application in light of application's language requirement, not a rule for a language requirement of a prior art. Furthermore, the PTO is not obliged to provide to the Applicant a translation of the prior art of record by any rule or law. Thus, the Applicant's argument on this point is not persuasive. However, the Examiner attaches a machine translated copy of the Yaguchi reference for the convenience of the Applicant, and the Examiner cautions the Applicant that the PTO is not responsible for any erroneous interpretation resulting from inaccuracies between the original foreign language reference used for the claims rejection and the machine translation of the reference, as the machine translation may not reflect the original precisely.

***Conclusion***

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher E. Lee whose telephone number is 703-305-5950. The examiner can normally be reached on 9:00am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark H. Rinehart can be reached on 703-305-4815. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Christopher E. Lee  
Examiner  
Art Unit 2112

cel/ *cel*



Glenn A. Auve  
Primary Patent Examiner  
Technology Center 2100

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-231969

(43)Date of publication of application : 22.08.2000

(51)Int.CI.

H01R 31/06

(21)Application number : 11-034651

(71)Applicant : MITSUMI ELECTRIC CO LTD

(22)Date of filing : 12.02.1999

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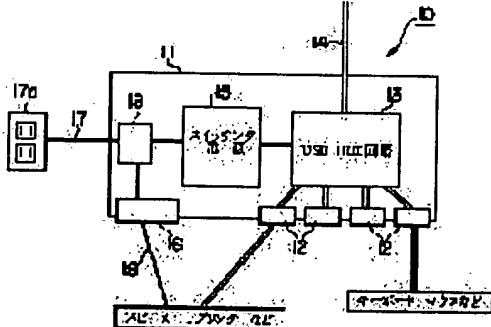
TAGUCHI JUNJI

## (54) USB HUB

### (57)Abstract:

PROBLEM TO BE SOLVED: To provide an USB HUB allowing easy supply of power to various peripherals connected with the USB port.

SOLUTION: This USB HUB 10 includes a plurality of USB ports 12 and an USB HUB circuit 13 connecting these USB ports 12 each other. The USB HUB 10 further includes a power supply 15 supplying DC voltage of a determined voltage to each USB parts 12, at least one AC output outlet 16 and a power cord 17 suppling AC voltage from the main power to the power supply 15 and the AC outlet 16.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or

[application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's  
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CLAIMS

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[Claim(s)]

[Claim 1] USB hub characterized by including the USB hub circuit which connects two or more USB ports and these USB ports mutually, and including the power cord which supplies the alternating voltage from a source power supply further to the power supply section which supplies the direct current voltage of predetermined voltage to each USB port, at least one AC output plug socket, and the above-mentioned power supply section and AC plug socket.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

#### [0001]

[The technical field to which invention belongs] this invention relates to the USB hub for connecting the various devices of a USB interface.

#### [0002]

[Description of the Prior Art] In recent years, for example, a personal computer, the interface (henceforth a USB interface) of USB specification has been adopted as a common interface for connecting various peripheral devices, for example, a keyboard, a mouse, a printer, etc. to the main part of a personal computer. And in order to connect the various peripheral devices of two or more USB interfaces to the main part of a personal computer, the USB hub equipped with the connector of two or more USB interfaces is used.

[0003] Here, it enables it to use the \*\*\*\*\* cable for a USB interface and to supply electric power to various peripheral devices from each USB port through USB hub in two a signal line and two power supply lines.

[0004] Such USB hub is constituted as shown in drawing 3 and drawing 4. The USB port 3 which consists of the USB connector [ two or more (in the case of illustration four pieces) ] prepared in the front face of the main part 2 of the shape of a rectangular parallelepiped with flat USB hub 1 in drawing 3 and drawing 4, The USB hub circuit 4 built in in the main part 2, and the USB cable 5 pulled out by the USB hub circuit 4 shell exterior, Shell composition is carried out with AC adapter 6 by which external was carried out to the main part 2 so that the direct current voltage of predetermined voltage (5V) may be supplied to each USB port 3 and the USB cable 5 through the USB hub circuit 4.

[0005] As shown in drawing 4, while the keyboard dealing with USB, a mouse, etc. a loudspeaker, a printer, etc. are connected, in the case of a loudspeaker with comparatively large power consumption, a printer, etc., a plug is connected to the AC plug socket 7 which is a source power supply, respectively, or direct current voltage is supplied to the above-mentioned USB port 3 through an AC adapter.

#### [0006]

[Problem(s) to be Solved by the Invention] however, when two or more peripheral devices which need power supplies, such as a loudspeaker and a printer, are connected to the USB port 3 Since it is necessary to connect with a source power supply, respectively, a power cord will be taken about by AC plug socket from these peripheral devices, respectively. Wiring became complicated, and when especially AC plug socket was in the place which the hand of the lower user of a desk cannot reach

easily, there was a problem that the connection to AC plug socket will become troublesome.

[0007] this invention aims at the current supply to the various peripheral devices connected to a USB port offering the USB hub which may have been made to be performed easily in view of the above point.

[0008]

[Means for Solving the Problem] According to this invention, the above-mentioned purpose includes the USB hub circuit which connects two or more USB ports and these USB ports mutually, and is attained by the USB hub characterized by including the power cord which supplies the alternating voltage from a source power supply further to the power supply section which supplies the direct current voltage of predetermined voltage to each USB port, at least one AC output plug socket, and the above-mentioned power supply section and AC output plug socket.

[0009] While these peripheral devices of each other [ and ] will be connected to the main part of a personal computer by connecting the various peripheral devices dealing with USB to a USB port according to the above-mentioned composition, the direct current voltage of predetermined voltage will be supplied from a USB hub circuit from a power supply section to a USB port by supplying the voltage of a source power supply to a power supply section through a power cord. Furthermore, about a peripheral device with comparatively large power consumption, electric supply of a source power supply may be performed among the various peripheral devices connected to a USB port by connecting the power cord or AC adapter to the above-mentioned AC output plug socket.

[0010] Therefore, since such a peripheral device with comparatively large power consumption does not need to connect the power cord or AC adapter to AC plug socket with which the indoor wall surface etc. was equipped like before and should just connect it to AC output plug socket prepared in USB hub, while connection to AC plug socket may be made easily, wiring of the circumference of a power supply may be simplified. Furthermore, since various devices, such as general household electric appliances, such as not only the peripheral device dealing with USB with comparatively large power consumption but other lights and shaver which were mentioned above, and a cellular-phone battery charger, may be connected to the above-mentioned AC output plug socket, the wiring of the circumference of a power supply including such various devices may be simplified.

[0011]

[Embodiments of the Invention] Hereafter, based on the operation gestalt shown in the drawing, this invention is explained in detail. Drawing 1 and drawing 2 show 1 operation gestalt of the USB hub by this invention. The USB port 12 which consists of the USB connector [ two or more (in the case of illustration four pieces) ] prepared in the front face of the main part 11 of the shape of a rectangular parallelepiped with flat USB hub 10 in drawing 1 and drawing 2, The USB hub circuit 13 built in in the main part 11, and the USB cable 14 pulled out by the USB hub circuit 13 shell exterior, So that the direct current voltage of predetermined voltage (5V) may be supplied to each USB port 12 and the USB cable 14 through the USB hub circuit 13 The switching power supply 15 as a power supply section built in in the main part 11, and AC output plug socket [ two or more (in the case of illustration two pieces) ] 16 further arranged in the upper surface of a main part 11, Shell composition is carried out with the AC distributor 18 which distributes the source power supply supplied by the power cord 17 equipped with plug 17a connected to a source power supply to the above-

mentioned switching power supply 15 and AC output plug socket 16.

[0012] The direct current voltage of predetermined voltage (for example, 5V) is impressed to the power supply line of each USB connector of the above-mentioned USB port 12, and the USB cable 14 from switching power supply 15, respectively. The above-mentioned USB hub circuit 13 is well-known composition, and it is constituted so that the signal line and power supply line of each USB port 12 and the USB cable 14 may be connected mutually. The above-mentioned USB cable 14 is connected to the USB connector of the USB port where the USB plug which it had at the nose of cam was prepared for example, in the main part of a personal computer (not shown).

[0013] Based on the source power supply of AC100V further inputted through the AC distributor 18 through a power cord 17 from plug 17a, the above-mentioned switching power supply 15 generates predetermined voltage, for example, the direct current voltage of 5V, and supplies it to the USB hub circuit 13. The source power supply of AC100V into which the above-mentioned AC output plug socket 16 is further inputted through the AC distributor 18 through a power cord 17 from plug 17a is outputted as it is.

[0014] USB hub 10 by this invention operation gestalt is constituted as mentioned above, and when using it, as shown in drawing 1, while USB hub 10 is connected to the USB port of the main part of a personal computer which the USB cable 14 does not illustrate, the keyboard dealing with USB, a mouse, etc. a loudspeaker, a printer, etc. are connected to each USB port 12 of USB hub 10.

[0015] Here, to AC output plug socket 16, in the case of a loudspeaker with comparatively large power consumption, a printer, etc., the power cord 19 of the peripheral device concerned is connected, or direct current voltage is supplied to it through an AC adapter, respectively.

[0016] Thus, while these peripheral devices of each other [ and ] will be connected to the main part of a personal computer by connecting the various peripheral devices dealing with USB, respectively to each USB port 12 according to USB hub 10 to which various peripheral devices were connected, electric supply is performed to the various peripheral devices connected to each USB port 12 by supplying the direct current voltage from switching power supply 15 to the power supply line of a USB interface.

[0017] Furthermore, about a peripheral device with comparatively large power consumption, for example, a loudspeaker, a printer, etc., electric supply of a source power supply may be performed among the various peripheral devices connected to a USB port by connecting the power cord 19 or AC adapter to the above-mentioned AC output plug socket 16.

[0018] Therefore, since what is necessary is not to connect the power cord 19 or AC adapter to AC plug socket with which the indoor wall surface etc. was equipped like before in the case of peripheral devices with comparatively large power consumption, such as a loudspeaker and a printer, and just to connect with AC output plug socket 16 prepared in USB hub 10, while connection to AC plug socket may be made easily, wiring of the circumference of a power supply may be simplified.

[0019] In the operation gestalt mentioned above, although a keyboard and a mouse are shown and the loudspeaker and the printer are shown as a peripheral device with power consumption large further comparatively as various peripheral devices connected to each USB port 12, it is clear that it can connect, not only this but other peripheral devices, for example, the terminal adapter of USB correspondence etc., etc..

[0020] Moreover, in the operation gestalt mentioned above, although the power cord

or AC adapter of a peripheral device dealing with USB with comparatively large power consumption is connected to AC output plug socket 16, since various devices, such as general household electric appliances, such as other devices, for example, a light, a shaver, and a cellular-phone battery charger, may also be connected, convenience may be further raised not only to this but to AC output plug socket 16.

[0021]

[Effect of the Invention] While these peripheral devices of each other [ and ] will be connected to the main part of a personal computer by [ which were described above ] connecting the various peripheral devices dealing with USB to a USB port like according to this invention, the direct current voltage of predetermined voltage will be supplied from a USB hub circuit from a power supply section to a USB port by supplying the voltage of a source power supply to a power supply section through a power cord. Furthermore, about a peripheral device with comparatively large power consumption, electric supply of a source power supply may be performed among the various peripheral devices connected to a USB port by connecting the power cord or AC adapter to the above-mentioned AC output plug socket.

[0022] Therefore, since such a peripheral device with comparatively large power consumption does not need to connect the power cord or AC adapter to AC plug socket with which the indoor wall surface etc. was equipped like before and should just connect it to AC output plug socket prepared in USB hub, while connection to AC plug socket may be made easily, wiring of the circumference of a power supply may be simplified. Furthermore, since various devices, such as general household electric appliances, such as not only the peripheral device dealing with USB with comparatively large power consumption but other lights and shaver which were mentioned above, and a cellular-phone battery charger, may be connected to the above-mentioned AC output plug socket, the wiring of the circumference of a power supply including such various devices may be simplified.

[0023] In this way, according to this invention, the extremely excellent USB hub to which current supply to the various peripheral devices connected to a USB port may have been made to be performed easily may be offered.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the outline perspective diagram showing 1 operation gestalt of the USB hub by this invention.

[Drawing 2] It is the block diagram showing the composition of the USB hub of drawing 1.

[Drawing 3] It is the outline perspective diagram showing an example of the conventional USB hub.

[Drawing 4] It is the block diagram showing the composition of the USB hub of drawing 3.

[Description of Notations]

10 USB Hub

11 Main Part

12 USB Port

13 USB Hub Circuit

14 USB Cable

15 Switching Power Supply

16 AC Output Plug Socket

17 Power Cord

17a Plug

18 AC Distributor

19 Power Cord

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